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EXAMINER

LEUNG, JENNIFER A

ART UNIT	PAPER NUMBER
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1764

DATE MAILED: 08/13/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/434,282

Applicant(s)

CHAPUS ET AL.

Examiner

Jennifer A. Leung

Art Unit

1764

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 10-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 10-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☒ Other: *Parent IDS*.

## DETAILED ACTION

### *Priority*

1. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been filed in parent Application No. 08/936,101, filed on September 23, 1997.
2. -- , now Patent number 6,007,704. -- should be appended to the preliminary amendment filed on November 5, 1999.

### *Drawings*

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the following must be shown or the feature(s) canceled from the claim(s):
  - a. Claims 10 and 14: "catalytic bed", "support", and "treatment zone (7) located after the hydrotreatment zone (5)"
  - b. Claims 11 and 15: "selective diene hydrogenation zone" and "mild hydrotreatment zone"
4. The drawings have not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the drawings.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance. No new matter should be entered.

### *Specification*

5. The disclosure is objected to because of the following use of legal phraseology in the Abstract: "comprising" (lines 2, 3, 6, 11, 12, 14, 16, 17) and "said" (lines 7, 8, 11, 16, 17).

Appropriate correction is required.

Applicant is reminded of the proper language and format for an abstract of the disclosure:

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

6. The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

### *Claim Objections*

7. Claim 16 is objected to under 37 CFR 1.75 as being a substantial duplicate of claim 12.

When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k). Applicant is advised that should claim 12 be found allowable, claim 16 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

8. Claims 10-11 and 13-17 are objected to because of the following informalities:

In claim 10, -- line -- should be inserted after “one” (line 5) and after “the other” (line 6) for consistency and clarity in the claims. Likewise, -- gasoline -- should be inserted after “light” (line 5) and after “heavy” (line 6); -- sweetening -- should be inserted after “said” (line 20) and before “zone (12)” (line 27); and -- stripping -- should be inserted before “zone (9)” (line 27).

In claim 11, -- gasoline -- should be inserted after “light” (line 5) and after “light” (line 6) for consistency and clarity in the claims.

In claim 13, -- sweetening -- should be inserted after “said” (line 3) for consistency and clarity in the claims.

In claim 14, -- sweetening -- should be inserted before “zone (12)” (line 6) and -- stripping -- should be inserted before “zone (9)” (line 6) for consistency and clarity in the claims.

In claim 15, -- gasoline -- should be inserted after “light” (line 4) for consistency and clarity in the claims.

In claims 16 and 17, -- fractionation -- should be inserted before “column” (line 3) for consistency and clarity in the claims.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. Claims 10-17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With respect to claim 10, the following terms are lacking proper positive antecedent basis: “the production of gasolines” (line 1), “the upper portion” (line 5), “the lower portion” (line 6), “the heavy cut” (lines 6-7), “hydrogen” (line 8), “the zone (7)” (lines 10-11), “hydrotreated effluent” (line 12), “light hydrotreated gasoline” (lines 13-14), “H<sub>2</sub>S” (line 14), “stripped light gasoline” (lines 14-15; line 19 as it is merely recited in an intended use clause above), “the treated light gasoline cut” (line 23), and “the stripped and sweetened light gasoline (line 26).

Furthermore, “low” (line 1), “light” (lines 5, 9, 13, 15, 19, 22, 23, 26), and “heavy” (line 6) are relative terms and are therefore considered vague and indefinite.

Furthermore, it is unclear as which zone is implied by “said zone” (line 24). Likewise, it is unclear as to which line is implied by, “said line” (lines 9-10).

Furthermore, in lines 16-17, it is unclear as to what structural elements the applicants are attempting to recite. Furthermore, it is unclear as to the relationship between “a treatment zone (7)” (line 21) and “sweetening zones” (lines 16-17) since it is unclear as to what is intended by, “at least one of the following sweetening zones” and whether the “treatment zone (7)” is a particular type of “sweetening zone”.

Furthermore, it is unclear as to the relationship of the following parts to the other elements of the apparatus: “a line” (see line 13), “a line” (see lines 18-19), “a line (3)” (see line 22; in particular, the relationship to “one (3)” set forth in line 5), and “an outlet line” (see line 23). Also, it is unclear as to the structural relationship of “a stripping zone (9)” (line 13) to the other elements of the apparatus.

With respect to claim 11, “the mild hydrotreatment zone”(line 4) lacks proper positive antecedent basis. Also, “mild” is a relative term and is therefore considered vague and indefinite. Also, it is unclear as to the relationship of “the mild hydrotreatment zone” and the “zone (5) for hydrotreatment” set forth in claim 1, line 8.

Furthermore, “the stripping step” (line 2) lacks proper positive antecedent basis. It is suggested to change “the stripping step” to -- the stripping zone (9) -- in order to correct for the improper antecedent basis, as set forth in claim 1, line 13.

Furthermore, “the dedienized light cut” (line 6) lacks proper positive antecedent basis.

Furthermore, it is unclear as to the relationship of “a line” (line 5) to the other elements of the apparatus (in particular, the “lines” set forth in claim 10). Likewise, the relationship of “an outlet line” (line 5) to the “outlet lines” set forth in claim 10.

With respect to claim 12, “the hydrotreated cut” (lines 3-4) lacks proper positive antecedent basis. Likewise, in lines 6 and 7 as “the hydrotreated cut” is merely recited in an intended use clause. Also, “the heavy fraction” (line 2) and “the feed” (line 4) lack proper positive antecedent basis.

Furthermore, it is unclear as to the structural relationship of “a zone (15) (lines 1-2) to the other elements of the apparatus. Also, it is unclear as to how “the zone” (lines 4-5) and “said zone” (line 5) are related to the other zones set forth in the claims, and to which zone is referred.

Furthermore, it is unclear as to the relationship of “a line (4)” (line 2) to “the other (4)” set forth in claim 10, line 6. Likewise, “a line” (see lines 5-6) to the other lines set forth in the claims.

With respect to claim 13, it is unclear as to the relationship of “a sweetening zone (12)” (lines 1-2) to “a sweetening zone (12)” set forth in claim 10, line 18. Likewise, “a line (14)” (line 3) to “a line (14)” set forth in claim 10, line 19.

Furthermore, it is unclear as to the relationship of “a line” (see line 2) to the other “lines” set forth in the claims, and to which “line” is referred.

Furthermore, it is unclear as to the relationship of “said zone” (line 3) to the other zones set forth in the claims, and to which zone is referred.

With respect to claim 14, it is unclear as to the relationship between “a treatment zone (7)” (line 1) and “a treatment zone (7)” set forth in claim 10, line 21. Likewise, “a line (3)” (line 2) and “one (3)” set forth in claim 10, line 5. Likewise, “a line (13)” (line 5) and “a line (13)” set forth in claim 10, line 26.

Furthermore, it is unclear as to the relationship of “an outlet line” (line 3) to the other outlet lines set forth in the claims. Likewise, “said zone” (line 3) to the other zones set forth in the claims, and to which zone is referred.

Furthermore, it is unclear as to the relationship of “at least one catalyst bed” (line 4) to the “at least one catalyst bed” set forth in claim 10, line 24. Likewise, the relationship of “a support” (line 4) to “a support” set forth in claim 10, line 25.

With respect to claim 15, the following terms lack proper positive antecedent basis: “the stripping step” (line 2), “the mild hydrotreatment zone” (lines 3-4), and “the dedienized light cut” (line 5). Also, “mild” is a relative term and is therefore considered vague and indefinite.



Furthermore, it is unclear as to the relationship between “a line” (line 4) and the other lines set forth in the claims. Likewise, the relationship between “an outlet line” (lines 4-5) and the other outlet lines set forth in the claims.

With respect to claims 16 and 17, “the hydrotreated cut” (lines 5-6), “the feed” (line 4), and “the heavy fraction “ (line 2) lack proper positive antecedent basis. Also, “hydrogen” (line 3) lacks proper positive antecedent basis as it is merely recited in an intended use clause (see claim 10, line 8).

Furthermore, it is unclear as to the relationship between “a line (4)” (line 2) and “the other (4)” set forth in claim 10, line 6.

Furthermore, it is unclear as to the relationship between “the zone” and “said zone” (line 4) to the other zones set forth in the claims, and to which zone is referred.

The claims are generally narrative, indefinite and appear to be a literal translation into English from a foreign document, thus rendering the claims difficult to search. It is suggested that the claims be rewritten in order to conform to current U.S. practice.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

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1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

10. Claims 10-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Louie et al. (U.S. 4,990,242) in view of Frame et al. (U.S. 5,064,525) and Bricker (U.S. 4,897,175).

With respect to claims 10, 13, and 14, Louie et al. disclose an apparatus for the production of gasoline of low sulfur content (column 2, lines 52-57) comprising:

A fractionation column **2** provided with a first line **1** for feed introduction, a second line **3** in the upper portion of the column for taking off a light cut, and a third line **4** in the lower portion of the column for taking off a heavy cut (note column 4, lines 12-21);

A hydrotreatment zone **9** for hydrotreatment of the light cut in the presence of hydrogen **5** comprising a catalyst (column 4, lines 41-54), an inlet line **3** for the light cut from the fractionation column **2**, and an outlet line **11** for the hydrotreated light cut; and

A stripping zone **17** comprising a line (see FIG. 1, line entering **17** on left) for introducing the hydrotreated light cut, a line for evacuating H<sub>2</sub>S (see FIG. 1, line exiting top of **17** labeled "H<sub>2</sub>S SCRUBBING"), and an outlet line for the stripped, hydrotreated, light cut (see FIG. 1, line exiting from the bottom of **17**).

However, Louie et al. are silent as to the one or more sweetening zones, namely a sweetening zone located after the stripping zone and a treatment zone located after the hydrotreatment zone.

Frame et al. teach a process for sweetening a sour hydrocarbon fraction comprising a sweetening zone (paragraph (b); column 2, lines 33-36) and a selective hydrogenation zone (paragraph (a); column 2, lines 28-32; interpreted by the examiner as the “treatment zone (7)”). The selective hydrogenation zone comprises preferably a Group VIII metal, such as palladium, deposited on a support (column 3, lines 4-16; column 4, lines 33-36). Frank et al. also indicate prior art disclosure of conducting hydrotreatment in conjunction with selective hydrogenation (column 2, lines 3-21).

Bricker et al., whose invention is incorporated in its entirety in the Frame et al. reference, further disclose that the selective hydrogenation zone may be employed in various places in the overall process of refining crude oil (column 4, lines 26-31).

It would have been obvious for one of ordinary skill in the art at the time the invention was made to provide the sweetening zone and selective hydrogenation zone to the apparatus of Louie et al. because elimination of mercaptans with hydrotreatment alone uses large quantities of hydrogen, which is uneconomical and hydrogenates some of the desirable components contained in the hydrocarbon fraction. Therefore, addition of a sweetening zone and/or selective hydrogenation zone to the hydrotreatment process overcomes these deficiencies, as taught by Frame et al. and Bricker et al. Furthermore, with respect to location of the sweetening zones within the refining process, shifting location of parts was held to have been obvious. *In re Japikse*, 181 F.2d 1019, 1023, 86 USPQ 70, 73 (CCPA 1950).

With respect to claims 11 and 15, the same comments with respect to Louie et al., Frame et al. and Bricker et al. apply. Furthermore, Frame et al. teach that the sweetening and selective hydrogenation zone may be carried out in any order, preferably with the hydrogenation carried out before sweetening (column 10, lines 47-64). In addition, Bricker et al. teach specifically that the selective hydrogenation zone may be placed directly after a fractionation column or upstream of a sweetening unit (column 4, lines 26-31).

It would have been obvious for one of ordinary skill in the art at the time the invention was made to provide the selective hydrogenation zone between the fractionation column and hydrotreatment zone in the modified apparatus of Louie et al. because the immediate selective hydrogenation of a fraction upon exiting the column eliminates the difficult to oxidize tertiary mercaptans present in the fraction, thereby improving the efficiency of oxidizing the fraction downstream in the sweetening zone, as taught by Frame et al. and Bricker et al. In any event, shifting location of parts was held to have been obvious. *In re Japikse*, 181 F.2d 1019, 1023, 86 USPQ 70, 73 (CCPA 1950).

With respect to claims 12, 16 and 17, the same comments with respect to Louie et al., Frame et al., and Bricker et al. apply. Furthermore, Louie et al. disclose a hydrotreatment zone **10** for hydrotreatment of the heavy cut comprising a line **4** for the introduction of the heavy cut from the fractionation column **2**, an outlet line **12** for the hydrotreated heavy cut, and a line **6** for supplying hydrogen to the feed. Also, the zone is followed by a stripping column **18** provided with a line for introducing the hydrotreated heavy cut (FIG. 1, line entering **18** from left), an H<sub>2</sub>S outlet line (FIG. 1, line exiting top of **19** labeled “H<sub>2</sub>S SCRUBBING”), and an outlet line for the stripped, hydrotreated, heavy cut (FIG. 1, line exiting bottom of **18**).

*Conclusion*

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Kirk and Christensen et al. are presented to illustrate the state of the art.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer A. Leung whose telephone number is 703-305-4951. The examiner can normally be reached on 8:30 am - 5:30 pm M-F, every other Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marian C. Knode can be reached on 703-308-4311. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

JAL  
August 9, 2002



Hien Tran  
**HIEN TRAN**  
**PRIMARY EXAMINER**